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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/963,305	09/26/2001	Henrik Botterweck	DE000155	1305

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER	
BRANT, DMITRY	

ART UNIT	PAPER NUMBER
2655	9

DATE MAILED: 08/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/963,305	Applicant(s) BOTTERWECK, HENRIK
	Examiner [redacted] Dmitry Brant	Art Unit 2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Kuhn et al. (U.S. Patent 6,571,208, hereinafter "Kuhn").

Claim(s)	Kuhn discloses:
1	A method of determining an eigenspace for representing a plurality of training speakers (col.2, ll.8-15), the method comprising the following steps: developing speaker-dependent (SD) sets of models for the individual training speakers while training speech data of the individual training speakers are used, the SD models of a set of models being described each time by a plurality of model parameters; (Fig.2: **20**; col.4, ll.50-53) displaying a combined model for each speaker in a high-dimensional vector space (e.g., supervector space) by concatenation of a plurality of the model parameters of the models of the sets of models of the individual training speakers to a respective coherent supervector; (Fig.2: **22**; col.4, ll.54-64) *{The original dimensional space, i.e., the dimensional space of the supervector, is a high-dimensional space.}* performing a transformation (e.g., linear transformation) while reducing the dimension

	of the model space (e.g., dimensionality reduction) to derive eigenspace basis vectors, (Fig.2: **24**; col.4, ll.65-67; col.5, ll.1-5) characterized by the following steps:
Claim(s) 2	Kuhn discloses: A method as claimed in claim 1, characterized in that the models are Hidden Markov models (i.e., HMM) in which each state (e.g., state s) of a single model (e.g., eigenmodel) is described by a respective mixture of a plurality of probability densities (e.g., mixture Gaussian density: col.6, ll.35-59) and the probability densities are described each time by a plurality of acoustic attributes (e.g., phonemes) in an acoustic attribute space (e.g., speaker space). (col.3, ll.38-65; col.4, ll.44-46)
Claim(s) 3	Kuhn discloses: A method as claimed in claim 1, characterized in that the transformation for determining the eigenspace basis vectors (e.g., eigenvectors) makes use of a reduction criterion based on the variability of the vectors to be transformed. (col.5, ll.7-17)
Claim(s) 4	Kuhn discloses: A method as claimed in claims 1, characterized in that for the eigenspace basis vectors, associated ordering attributes are determined. (col.5, ll.17-20)
Claim(s) 5	Kuhn discloses: A method as claimed in claim 4, characterized in that the eigenspace basis vectors are the eigenvectors of a correlation matrix (e.g., mean supervector matrix) determined by means of the supervectors (e.g., mixture Gaussian means) and the ordering attributes of the eigenvalues belonging to the eigenvectors. (col.6, ll.44-67)
Claim(s) 6	Kuhn discloses: A method as claimed in claim 4, characterized in that for reducing the dimension of the eigenspace a certain number of eigenspace basis vectors are rejected while taking the ordering attributes into account. (col.5, ll.21-33)

	{The first K of n eigenvectors are retained while the higher order eigenvectors are discarded.}
Claim(s) 7	Kuhn discloses: A method as claimed in claim 1, characterized in that for the high-dimensional model space (e.g., the original high-dimensional space), first a reduction (e.g., dimensionality reduction) is made to a speaker subspace via a change of basis, in which speaker subspace all the supervectors of all the training speakers are represented and in this speaker subspace the transformation (e.g., linear transformation) is performed for determining the eigenspace basis vectors (e.g., eigenvectors that define the eigenspaces, i.e., the reduced dimensional space). (col.4, ll.50-67; col.5, ll.1-19)
Claim(s) 8	Kuhn discloses: A method as claimed in claim 1, characterized in that the transformation is performed for determining the eigenspace basis vectors on the different vectors of the supervectors of the individual training speakers to an average supervector (e.g., the centroids). (col.5, ll.34-42) *{The centroids are determined by maximizing the auxiliary function Q and solving a set of linear equations. (col.6, ll.8-67; col.2, ll.1-51)}*
Claim(s) 9	Kuhn discloses: A speech recognition method in which a basic set of models (e.g., context-dependent models) is adapted to a current speaker on the basis of already observed speech data (e.g., speaker-adjusted training data) to be recognized of this speaker while an eigenspace is used, which eigenspace was determined based on training speech data of a plurality of training speakers in accordance with a method as claimed in claim 8. (col.7, ll.52-67; col.8, ll.1-30)
Claim(s) 10	Kuhn discloses: A computer program with program code means for executing all the steps of a method as claimed in claim 8 when the program is executed on a computer (e.g., recognition system). (col.3, ll.13-26) *{The program with programming codes are inherent to the recognition system.}*

Claim(s) 11	Kuhn discloses: A computer program with program code means as claimed in claim 10, which are stored on a computer-readable data carrier. *{Memory is inherent to the recognition system for storing training speech data and speech model parameters.}*

Claim Objections

Claims 1-11are

3. ~~Claim 1 is~~ objected to because of the following informalities:

The ending of the claim contains phrase "characterized by the following steps:", but no steps are listed, thus this phrase. should be deleted.

Appropriate correction is required.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

[1] Kuhn et al (6, 343, 267)

[2] Nguen et al. (6, 263, 309)

[3] R. Kuhn et al., "Eigenfaces and eigenvectors: dimensionality reduction for specialized pattern recognition, " 1998 IEEE Workshop on Multimedia Signal Processing, pp. 71-76, Dec. 7-Dec. 9, 1998

[4] R.Kuhn et al., "Eigenvoices for speaker adaptation," ICSLP'98, vol.5, pp. 1771-1774,, Nov. 30-Dec. 4, 1998

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Brant whose telephone number is (703) 305-8954. The examiner can normally be reached on Mon. - Fri. (8:30am - 5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Ivars Smits can be reached on (703) 306-3011. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Tech Center 2600 receptionist whose telephone number is (703) 305- 4700.

DB

8/13/04

W. R. YOUNG
PRIMARY EXAMINER